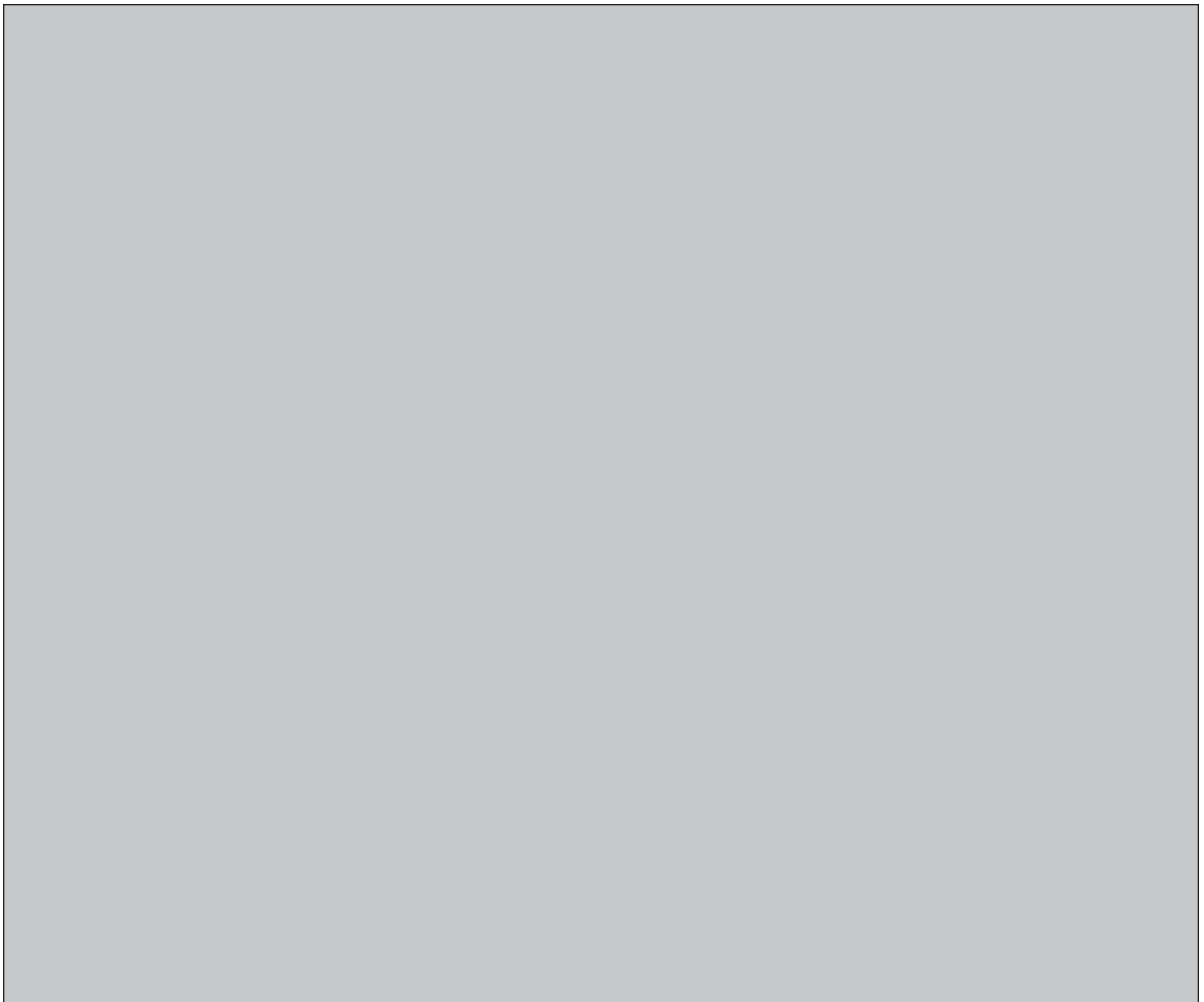


**NWMO BACKGROUND PAPERS**  
**9. ASSESSMENTS**

**9-2a ASSESSMENT OF BENEFITS, RISKS AND COSTS OF MANAGEMENT APPROACHES  
FOR USED NUCLEAR FUEL BY ILLUSTRATIVE ECONOMIC REGION**  
**TECHNICAL REPORT**  
**EXECUTIVE SUMMARY**

**Golder Associates Ltd., Gartner Lee Limited**



## **Assessment of Benefits, Risks and Costs of Management Approaches for Used Nuclear Fuel by Illustrative Economic Region**

### **Executive Summary:**

The purpose of this report is to present a comparison of benefits, risks and costs for different approaches for the long-term management of used nuclear fuel, taking into account economic regions in which they might be implemented. Specifically, the analysis considers each of the three approaches outlined in the Nuclear Fuel Waste Act (NFWA), requiring study by the Nuclear Waste Management Organization (NWMO): Deep Geological Disposal in the Canadian Shield; Storage at Nuclear Reactor Sites; and Centralized Storage either above or below ground.

This report builds on the Preliminary Comparative Assessment prepared by the NWMO Assessment Team. It uses statistical and demographic information from publicly available sources and then develops quantitative and qualitative analyses that incorporate the objectives and influencing factors previously identified by the NWMO Assessment Team as reflecting Canadian values, objectives and concerns.

The report methodology analyzes each management approach over comparative project stages and timelines, while evaluating the performance of each of the three management approaches against eight objectives established for NWMO's study of management approaches. The eight objectives are:

- Fairness
- Public Health and Safety
- Worker Health and Safety
- Community Well-being
- Security
- Environmental Integrity
- Economic Viability
- Adaptability

In considering the comparison of benefits, risks, and costs across approaches, the analysis takes into account the types of economic regions in which each approach might be implemented. The purpose of looking at illustrative economic regions is to highlight how changes in location could potentially affect the way in which management approaches would perform against the eight objectives. Quantifiable criteria were used to differentiate and select a subset (11 illustrative regions) from all economic regions within Canada (76 in total), forming a comparative cross section of the country. The analytical criteria used include: population density, environmental physiographic classifications, transportation distance (regional geographic centre), as well as economic concentration and diversity. These measures were developed to help identify a representative range of illustrative economic regions for which the potential impacts of each approach may vary.